

What is claimed is:

1. A pyrotechnic device having firing-readiness diagnostics, comprising an igniter and electronic circuitry configured and/or programmed to perform one or more firing-readiness diagnostics on said pyrotechnic device.
2. The device of claim 1, wherein said igniter includes an ignition element, and said electronic circuitry comprises a resistance check module.
3. The device of claim 1, wherein said igniter includes an ignition element, and said electronic circuitry comprises a continuity check module.
4. The device of claim 3, wherein said device includes an ASIC that contains said circuitry.
5. The device of claim 4, wherein said device is an electronic detonator, said igniter is hermetically sealed, and said ignition element is a bridgewire.
6. The device of claim 1, wherein said igniter includes a firing capacitor, and said electronic circuitry is configured and/or programmed to verify that the firing capacitor has a capacitance above or below a certain value.

7. The device of claim 1, wherein said igniter includes a firing capacitor, and said electronic circuitry is configured and/or programmed to verify that the firing capacitor has a capacitance above a first value and below a second value.
8. The device of claim 7, wherein said device is an electronic detonator.
9. The device of claim 7, wherein said igniter further includes an ignition element, and said electronic circuitry includes a resistance check module.
10. The device of claim 7, wherein said igniter further includes an ignition element, and said electronic circuitry includes a continuity check module.
11. The device of claim 10, wherein said device is an electronic detonator, said igniter is hermetically sealed, and said ignition element is a bridgewire.
12. An electronically connected system comprising:
  - a) a master device;
  - b) a bus connected to said master device; and,
  - c) a plurality of electronic pyrotechnic devices connected to said bus, each said pyrotechnic device comprising an igniter and electronic circuitry configured and/or

programmed to perform one or more pyrotechnic device firing-readiness diagnostics.

13. The system of claim 12, wherein said igniter includes a firing capacitor, and said electronic circuitry is configured and/or programmed to verify that the firing capacitor has a capacitance above a first value and below a second value.
14. The system of claim 13, wherein said igniter further includes an ignition element, and said electronic circuitry includes a continuity check module.
15. The system of claim 14, wherein said device is an electronic detonator, said igniter is hermetically sealed, and said ignition element is a bridgewire.
16. A method of operating a system of electronic pyrotechnic devices, comprising the following steps:
  - a) providing a master device and a bus connected to the master device;
  - b) connecting a plurality of electronic pyrotechnic devices to said bus;
  - c) issuing one or more commands from said master device on said bus; and,

- d) after step c), performing one or more firing-readiness diagnostics on said system.
17. The method of claim 16, wherein step d) includes the step of performing one or more checks selected from the following group: (1) an incompatible attached device check, (2) an ignition element check, and (3) a firing capacitor capacitance check.
18. The method of claim 17, wherein each said pyrotechnic device comprises an igniter and electronic circuitry configured and/or programmed to perform one or more pyrotechnic device firing-readiness diagnostics.
19. The method of claim 18, further comprising the step of performing one or more firing-readiness diagnostics on said pyrotechnic devices before or during step c).
20. The method of claim 19, further comprising the step of issuing information to said master device from any pyrotechnic device that fails said firing-readiness diagnostics.